

IN THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. - 15. (Canceled)

16. (New) A mass spectrometer comprising:

an ion source for producing ions;

a mass analyzer; and

a traveling field device for transporting ions along a path from said ion source to said mass analyzer, said device having a traveling field voltage applied to at least a part of said device.

17. (New) A mass spectrometer according to claim 16, wherein said device comprises a plurality of coaxial apertured diaphragms.

18. (New) A mass spectrometer according to claim 17, wherein at a first end of said device a distance between each of said apertured diaphragms is smaller than at a second end of said device.

19. (New) A mass spectrometer according to claim 17, wherein at a first end of said device a size of apertures of said apertured diaphragms is smaller than at a second end of said device.

20. (New) A mass spectrometer according to claim 16, wherein said traveling field voltage has an even number of rotational phases having equal angle of rotation spacings.
21. (New) A mass spectrometer according to claim 16, wherein an RF voltage is superimposed over said traveling field voltage.
22. (New) A mass spectrometer according to claim 21, wherein said RF voltage is a two-phase RF voltage.
23. (New) A mass spectrometer according to claim 16, wherein a damping gas is provided in said traveling field device to reduce oscillations of said ions in said device.
24. (New) A mass spectrometer according to claim 16, wherein said traveling field device is capable of trapping said ions for a predetermined length of time.
25. (New) A mass spectrometer according to claim 16, wherein said traveling field voltage comprises four, six or eight phases.
26. (New) A mass spectrometer comprising:
- an ion source for producing sample ions;
 - a filter for receiving said sample ions from said ion source and selecting certain of said

sample ions;
a traveling field device comprising a plurality of coaxial diaphragms; and
an analyzer including a detector for detecting said sample ions;
wherein a traveling field voltage and a superimposed two-phase RF voltage are applied
along said diaphragms, and
wherein said traveling field device transports said selected ions from said filter to said analyzer.

27. (New) A mass spectrometer according to claim 26, wherein said mass spectrometer further comprises a pulser for packaging said selected ions.

28. (New) A mass spectrometer according to claim 27, wherein said mass spectrometer further comprises an ion reflector for reflecting ions received from said pulser onto a path toward said deflector.

29. (New) A mass spectrometer according to claim 27, wherein said selected ions are continuously injected into said pulser.

30. (New) A mass spectrometer according to claim 26, wherein said mass spectrometer is capable of trapping said ions for a predetermined length of time.

31. (New) A mass spectrometer comprising:
a traveling field ion guide having a plurality of coaxial apertured diaphragms with a first alternating voltage alternately superimposed over a second alternating voltage.
32. (New) A mass spectrometer according to claim 31, wherein said first alternating voltage is a two-phase RF voltage.
33. (New) A mass spectrometer according to claim 31, wherein said second alternating voltage is a multiphase low-frequency voltage.
34. (New) A mass spectrometer according to claim 31, wherein a voltage generator provides sequential rotational phases of said second voltage to said apertured diaphragms.
35. (New) A mass spectrometer according to claim 31, wherein said second voltage comprises rotary phases having an equal angle of rotation spacings.--